

REMARKS

A. Substance of Interview

An Interview Summary was mailed on November 15, 2005 in which it described a telephone conversation held on November 8, 2005 between the undersigned and Examiner Monbleau regarding the propriety of making the Office Action mailed October 19, 2005 final. The Interview Summary accurately sets forth the issues discussed on November 8th.

B. Objection to Claims

In the Office Action of November 15, 2005, claim 19 was objected to for reciting "a plurality of detector elements" which was not further limiting claim 1 which recites "an arrangement of detector elements." Claim 19 has been amended so as to depend from claim 12 instead of claim 1 and so the objection has been overcome and should be withdrawn.

Claim 19 was also objected for using the phrase "each on." Claim 19 has been amended to replace the offending phrase with the phrase "each one." Accordingly, the objection has been overcome and should be withdrawn.

Both of the above mentioned amendments to claim 19 are being made to correct obvious typographical errors and so are not being made for reasons of patentability as defined in *Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 234 F.3d 558, 56 USPQ2d 1865 (Fed. Cir. 2000) (*en banc*), *overruled in part*, 535 U.S. 722 (2002).

C. 35 U.S.C. § 102

1. Claims 1, 8, 10, 11 and 18

Claims 1, 8, 10, 11 and 18 were rejected under 35 U.S.C. § 102(e) as being anticipated by Mayer et al. Applicant traverses the rejection. The Office Action has relied on the embodiment of FIGS. 1-3 and the separate embodiment of FIG. 6 as anticipating claim 1. Based on a reading

of the rejection, it appears that the rejection is combining different elements from the two embodiments to reject the claims without direction from Mayer et al. to do so. This is improper. Anticipation of a claim can only be found when the reference expressly or inherently discloses each of the elements of the claim and such disclosed elements must be arranged as in the claim. *Connell v. Sears, Roebuck & Co.*, 722, F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983).

With the above comments kept in mind, Applicant will look at the two embodiments separately. First, the embodiment of FIGS. 1-3 fails to disclose a position measuring instrument that includes “a reference marking disposed within said measurement range and integrated with said incremental graduation.” In the embodiment of FIGS. 1-3, a marker R is embodied as amplitude structures B1 to B5 which are not within the measurement range that contains the graduation periods of the grating T on support 2 (Col. 5, ll. 1-8).. Furthermore, the marker R is offset from the grating T as shown in FIG. 2 and so the marker is not integrated with the grating T. Since the embodiment of FIGS. 1-3 fails to disclose all of the elements recited in claim 1, claim 1 is not anticipated by that embodiment.

Besides not being anticipated by Mayer et al., claim 1 is not rendered obvious by Mayer et al. since there is no suggestion in Mayer et al. or the prior art to alter the FIGS. 1-3 embodiment of Mayer et al. so as to use a reference marking that is 1) disposed within a measurement range that contains the graduation periods of the grating T and 2) integrated with the grating T. Without such suggestion, claim 1 and its dependent claims should be allowed.

Regarding the embodiment of FIG. 6, claim 1 recites “an evaluation device that receives said scanning signals and detects at least one scanning signal, modified by said reference marking, from said plurality of scanning signals.” The Office Action has asserted that “it is inherent that there is an evaluation device” disclosed in Mayer et al. Assuming for arguments

sake that Mayer et al. discloses an evaluation device, such an evaluation device does not detect “at least one scanning signal, modified by said reference marking, from said plurality of scanning signals” and does not determine “an absolute position of said reference marking within said length of said measurement range as a function of said detected at least one scanning signal” as recited in claim 1. Assuming the embodiment of FIG. 6 uses the detector arrangement of FIGS. 1-2, no evaluation device would be able to determine an absolute position of the reference marking within the length of the measurement range. In particular, Mayer et al. discloses that photodetectors 5, 6 detect light transmitted from partial gratings assigned to them so that several phase scanning signals, phase shifted with respect to each other, are created (Col. 4, ll. 9-13). A separate photodetector 7 receives signals from the reference marker R embodied as amplitude structures B1-B5 that are used to determine an absolute position (Col. 6, ll. 30-38). In other words, the scanning signals detected by photodetectors 5, 6 and the signals from photodetector 7 are not intermingled and so the scanning signals are not modified by the reference marking at the photodetectors. Furthermore, there is no disclosure in Mayer et al. of an evaluation device that takes the scanning signals detected by photodetectors 5, 6 and then modifies those signals by a signal from photodetector 7. The Office Action has relied on the following passage of Mayer et al. as showing a scanning signal modified by a reference marker:

In a preferred embodiment, the reference marker R is embodied as amplitude structures B1 to B5 on the scale 2 and is scanned by cast shadows. Scanning a cast shadow corresponds to a purely geometric representation without taking the diffraction of light into consideration. In the course of scanning a cast shadow, the grating to be represented is arranged so close to the plane of projections that diffraction at this distance is negligible and has no effect. The illumination of the phase grating T and of the reference marker R is mutually provided by the divergent light source 4. The width DB of a field B1 to B5 of the reference marker R corresponds preferably to the graduation period P2 or a multiple of the

graduation period P2 of the phase grating T, i.e., it is greater than the width DT of a gap in the phase grating T. (Col. 5, ll. 5-20).

The above passage only refers to generating an absolute position signal from reference marker R. The passage is silent that the absolute position signal is used to modify one of the scanning signals detected by either one of the photodetectors 5, 6. Accordingly, claim 1 is not anticipated by Mayer et al.

Claim 1 is not anticipated by Mayer et al. for the additional reason that there is no disclosure in Mayer et al. of an evaluation device that determines an absolute position within the measurement range as a function of a scanning signal from either photodetector 5 or photodetector 6. The Office Action asserts that the following passage from claim 1 of Mayer et al. discloses such an evaluation device:

at least one photodetector for detecting the second set of modulated light beams, wherein said at least one photodetector generates a signal representative of an absolute position of said reference marker. (Col. 7, ll. 61-65).

The above passage is silent regarding an evaluation device. The passage is also silent regarding determining an absolute position within a measurement range as a function of a scanning signal from either photodetector 5 or photodetector 6. Accordingly, claim 1 is not anticipated by Mayer et al.

Besides not being anticipated by Mayer et al., claim 1 is not rendered obvious by Mayer et al. since there is no suggestion in Mayer et al. or the prior art to alter the FIG. 6 embodiment of Mayer et al. so as to use an evaluation device that 1) detects a scanning signal, from a plurality of scanning signals, that has been modified by a reference marking and 2) determines an absolute position of a reference marking “as a function of said detected at least on scanning signal” that is modified by the reference marking. Without such suggestion, claim 1 and its dependent claims

should be allowed.

The rejections of claim 10 and 11 are improper for the additional reason that Mayer et al. fails to disclose an absolute code that is parallel to and next to an incremental graduation (claim 10), wherein the absolute code “is a single-track sequential code with successive code elements” (claim 11). The Office Action asserts that item 1 of Mayer et al. is such a code. However, the FIG. 6 embodiment fails to disclose item 1 and so the rejection is improper.

Even if the FIG. 6 embodiment did disclose using item 1, Mayer et al. discloses that item 1 is a grating that is in front of the scale 2 and so cannot be an absolute code. It is noted that the above argument was presented in Applicant’s Amendment filed on September 15, 2005 and has not been addressed in the present Office Action which is improper.

Regarding claim 18, it recites that each of the detector elements is assigned its own corresponding location within the length of the measurement range. Thus, for example, a first detector is assigned a location x_1 and a second detector is assigned a second location x_2 . The claim further recites that the absolute position determined is one of the assigned locations. It is noted that the Office Action relies on the photodetectors 5, 6 as disclosing the recited detector elements. Assuming the embodiment of FIG. 6 uses the detector arrangement of FIGS. 1-2, there is no disclosure that the absolute position corresponds to one of the positions of photodetectors 5, 6. The Office Action has not pointed to any disclosure in Mayer et al. that discloses such an absolute position.

2. Claims 12 and 19

Claims 12 and 19 were rejected under 35 U.S.C. § 102(e) as being anticipated by Mayer et al. Applicant traverses the rejection. In particular, claim 12 recites a method for position measurement that includes “a reference marking being integrated with one of said graduation

periods.” As pointed out in Section C.1, the embodiment of FIGS. 1-3 does not disclose a reference marking integrated with a graduation.

Besides not being anticipated by Mayer et al., claim 1 is not rendered obvious by Mayer et al. since there is no suggestion in Mayer et al. or the prior art to alter the FIGS. 1-3 embodiment of Mayer et al. so that a reference marking is integrated with a graduation.

Assuming the embodiment of FIG. 6 is being relied on by the Office Action, the rejection is improper because the embodiment is not used for “detecting said at least one scanning signal, modified by said reference marking, from among said plurality of periodic scanning signals.” As stated above in Section B.1, Mayer et al. does not detect a signal modified by a reference marker from among a plurality of scanning signals. Accordingly, the rejection is improper.

The rejection of claim 12 is improper for the additional reason that the embodiment of FIG. 6 of Mayer et al. fails to disclose a method for position measurement that determines “an absolute position of said reference marking within said length of said measurement range as a function of said scanning signal detected” that is modified by the reference marking. As stated above in Section C.1, the absolute position of Mayer et al. is not determined as a function of a detected scanning signal modified by a reference marking. Accordingly, the rejection is improper.

Besides not being anticipated by Mayer et al., claim 12 is not rendered obvious by Mayer et al. since there is no suggestion in Mayer et al. or the prior art to alter Mayer et al. so as to use a method for position measurement with respect to the FIG. 6 embodiment that 1) detects a signal modified by a reference marker from among a plurality of scanning signals and 2) determining the absolute position of Mayer et al. as a function of a detected scanning signal modified by a reference marking. Without such suggestion, claim 12 and its dependent claims should be

allowed.

Regarding claim 19, claim 19 recites that each of the detector elements is assigned its own corresponding location within the length of the measurement range. As pointed above in Section B.1 with respect to claim 18, Mayer et al. does disclose that the absolute position determined is one of the assigned locations. Accordingly, the rejection should be withdrawn.

D. 35 U.S.C. § 103

1. Claims 2-7 and 9

Claims 2-7 and 9 were rejected under 35 U.S.C § 103 as being obvious in view of Mayer et al. and Omi. As pointed out in Section C.1, there is no motivation in Mayer et al. to alter the FIG. 6 embodiment so as to use an evaluation device that 1) detects a scanning signal, from a plurality of scanning signals, that has been modified by a reference marking and 2) determines an absolute position of a reference marking “as a function of said detected at least on scanning signal” that is modified by the reference marking. Since Omi also does not suggest altering the FIG. 6 embodiment so as to use an evaluation device that 1) detects a scanning signal, from a plurality of scanning signals, that has been modified by a reference marking and 2) determines an absolute position of a reference marking “as a function of said detected at least on scanning signal” that is modified by the reference marking, the rejection is improper and should be withdrawn.

The rejections of claim 5-7 are traversed for the additional reason that neither Mayer et al. nor Omi suggests altering the FIG. 6 embodiment of Mayer et al. to use an evaluation unit to compare in-phase scanning signals to determine a scanning signal to be modified by a reference marking as recited in claim 5. The Office Action has asserted that such comparing is standard. However, the Office Action has failed to recite one reference that shows such comparing. The

reason is apparently that the comparing is not as standard as asserted by the Office Action. If this rejection is repeated, Applicant demands that a reference be cited that shows that the elements of claim 5 are standard. Otherwise, improper hindsight and Applicants' own disclosure is being used to reject the claims. The rejections of claims 6 and 7 are improper for similar reasoning in that the Office Action has not recited any reference showing that the elements of claims 6 and 7 are standard practice.

2. Claims 13-17


Claims 13-17 were rejected under 35 U.S.C § 103 as being obvious in view of Mayer and Omi. As pointed out in Section C.2, there is no motivation in Mayer et al. to alter Mayer et al. to use a method for position measurement with respect to the FIG. 6 embodiment that 1) detects a signal modified by a reference marker from among a plurality of scanning signals and 2) determining the absolute position of Mayer et al. as a function of a detected scanning signal modified by a reference marking. Since Omi also does not suggest altering Mayer et al. to use a method for position measurement with respect to the FIG. 6 embodiment that 1) detects a signal modified by a reference marker from among a plurality of scanning signals and 2) determining the absolute position of Mayer et al. as a function of a detected scanning signal modified by a reference marking, the rejection is improper and should be withdrawn.

CONCLUSION

In view of the arguments above, Applicant respectfully submits that all of the pending claims 1-19 are in condition for allowance and seek an early allowance thereof. If for any reason, the Examiner is unable to allow the application in the next Office Action and believes

that an interview would be helpful to resolve any remaining issues, she is respectfully requested to contact the undersigned attorneys at (312) 321-4200.

Respectfully submitted,



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